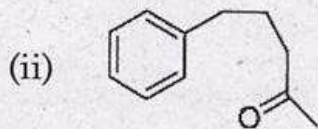
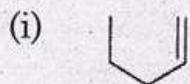


17. (a) Write note on Chemical exchange. (5)
 (b) Discuss how anisotropic effect affects the chemical shift value in ^1H NMR. (5)

18. (a) Discuss the McLafferty rearrangement of following examples (6)



- (b) Explain about ORD and write its applications. (4)
19. (a) Write note on Paterno-Buchi reaction and Intramolecular Paterno-Buchi reaction with mechanism. (6)
 (b) Explain photo reduction with example (4)
20. (a) Write any one method for the preparation of guanine, and uracils. (4)
 (b) How will you convert cholesterol to testosterone? (6)

NOVEMBER/DECEMBER 2025

**GCH31/DCH31 — ORGANIC
CHEMISTRY — III**

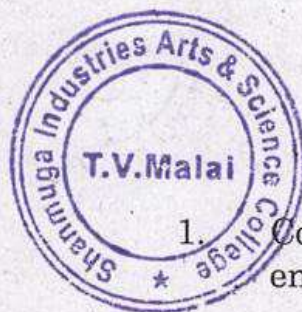
Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Compare the various electronic transition using energy level diagram.
2. Write the application for IR to identify the type of hydrogen bonding?
3. What is CW and FT NMR?
4. Write briefly on nuclear Overhauser effect.
5. Illustrate the mass spectrum of ethyl bromide.
6. Why mass spectrum of toluene shows peaks at m/e values of 91 and 65?
7. Discuss about the cycloaddition reaction.

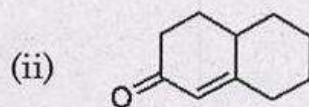
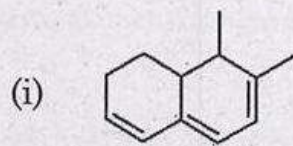


8. Draw the structure of Bullvalene and explain special features.
9. Draw the structure of progesterone and estrone.
10. Write the synthesis of thiazole.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Calculate the value of absorption maximum for the following compounds?



Or

- (b) Outline the factors affecting the vibrational frequencies.
12. (a) Write a note on spin-spin coupling.

Or

- (b) Outline about the proton decoupling and off resonance decoupling spectra.

13. (a) Summarize the available measurement techniques in Mass spectroscopy.

Or

- (b) Describe the homolytic and heterolytic cleavage based fragmentation mode.

14. (a) Describe the [3,3] sigmatropic rearrangements with example?

Or

- (b) Demonstrate the electrocyclic reaction of butadiene system under photochemical and thermal conditions with energy level diagram.

15. (a) Discuss the synthesis of one method of flavones and imidazole.

Or

- (b) Write one method of preparation of adenine and isoflavone.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Summarise the factors affecting the position and intensity of absorption bands.